Amendments to the Specification:

Please delete the heading "Description" on page 1, line 1.

Please replace the paragraphs beginning on page 2, line 5 through page 3, line 5, which start with "To improve the operability" with the following rewritten paragraphs:

To improve the operability of the clutch operation part, a clutch power assist device has been proposed in which in the two-wheel vehicle, a force for supplementing an operation force applied from the clutch operation part is applied to a member, such as a push rod, which operates for clutch engagement/disengagement, in accordance with an operation of the clutch lever by utilizing a rotational force of an electric motor, a hydraulic pressure, or the like ~~(See JP-A-6-117450)~~.

In the above-described clutch power assist device, however, the load of the driver is reduced by the assist force from the assist force generating ~~means~~ device, indeed. In such a lever operation that a clutch lever operation speed greatly varies during the stroke, for example, the returning of the clutch lever is stopped during the stroke to set the clutch to be put in a half-clutching state, the driver sometimes has an unnatural feeling when he operates the clutch lever.

The assist force from the assist generating ~~means~~ device oppositely or resistively acts against a motion of a driven member (member operating for the clutch releasing) which links in operation with a change of operating speed of the clutch lever. As a result, a rate at which the output force from the assist force generating ~~means~~ device is transmitted as an assist force to the driven member greatly varies, and the assist force to originally be applied at an operation position of the clutch lever varies, and sometimes the driver have an unnatural feeling in operating the clutch lever.

Please replace the heading on page 3, line 3 with the following rewritten heading:
~~Disclosure of~~ Summary of the Invention

Please replace the paragraphs beginning on page 6, line 7 through page 5 line 14, which start with "Accordingly, an object of the present" with the following rewritten paragraphs:

Accordingly, an ~~object~~ advantage of the present invention is to provide a power assist clutch system which lessens a load of the driver when he operates a clutch operation part and generates an assist force in accordance with an operation input condition of the clutch operation part to thereby realize a quick and smooth control, a method of controlling the power assist clutch system and a program for controlling the power assist clutch system.

To achieve the above ~~object~~ advantage, a first aspect of the present invention provides a power assist clutch system for effecting, in an automotive having a clutch~~;~~, a drive force transmission member for transmitting a drive force to the clutch~~; and~~, a clutch operation part coupled to the clutch via the drive force transmission member, and an assist force for assisting an intermittent operation of the clutch caused by an operation force transmitted from the clutch operation part~~;~~. ~~the~~ The power assist clutch system ~~including:~~ includes a detecting portion for detecting an operation force that operates the clutch operation part~~;~~, a control portion for outputting a control signal for controlling the assist force based on the operation force detected by the detecting portion~~;~~, an assist force generating portion for generating the assist force in accordance with the control signal output from the control portion~~;~~, and a drive force generating portion for generating a drive force for operating the clutch by combining the operation force transmitted through the drive force transmission member and the assist force.

Also, a second aspect of the invention provides a method for controlling a power assist clutch system for effecting, in an automotive having a clutch~~;~~, a drive force transmission member for transmitting a drive force to the clutch~~;~~, and a clutch operation part coupled to the clutch via the drive force transmission member, an assist force for assisting an intermittent operation of the clutch caused by an operation force transmitted from the clutch operation part~~;~~. ~~the~~ The method ~~including:~~ includes a detecting step for detecting an operation force when a driver operates the clutch operation part~~;~~, a control step for outputting a control signal for controlling the assist force based on an operation force detected by ~~the~~ a detecting ~~means;~~ device, an assist force generating step for generating the assist force in accordance with the control signal output from the control step~~;~~, and a drive force generating step for generating a drive force for operating the clutch by combining the operation force transmitted through the drive force transmission member and the assist force.

Further, a third aspect of the invention provides a program for controlling a power assist clutch system for effecting, in an automotive having a clutch~~;~~, a drive force transmission member

for transmitting a drive force to the clutch~~,~~ and a clutch operation part coupled to the clutch via the drive force transmission member, an assist force for assisting an intermittent operation of the clutch caused by an operation force transmitted from the clutch operation part, the program causes a computer to function as a control ~~means~~ device for outputting a control signal for controlling the assist force in accordance with an operation force detected by a detecting part for detecting the operation force.

Please replace the paragraph beginning on page 7, line 7 through line 9, which starts with "Fig. 14 is" with the following rewritten paragraph:

Fig. 14 is a partial cross sectional view showing a construction of a sensor portion in a power assist clutch system which is a second embodiment of the present invention;

Please replace the paragraph beginning on page 7, line 12 through line 13, which starts with "Fig. 16 is" with the following rewritten paragraph:

Fig. 16 is a diagram schematically showing a power assist clutch system which is a third embodiment of the present invention;

Please replace the paragraph beginning on page 7, line 21 through line 23, which starts with "Fig. 20 is" with the following rewritten paragraph:

Fig. 20 is a partial cross sectional view showing a construction of a sensor portion in a power assist clutch system which is a fourth embodiment of the present invention;

Please replace the paragraph beginning on page 8, line 1 through line 3, which starts with "Fig. 22 is" with the following rewritten paragraph:

Fig. 22 is a partial cross sectional view showing a construction of a sensor portion in a power assist clutch system which is a fifth embodiment of the present invention;

Please replace the paragraph beginning on page 8, line 9 through line 11, which starts with "Fig. 25 is" with the following rewritten paragraph:

Fig. 25 is a partial cross sectional view showing a construction of a sensor portion in a power assist clutch system which is a sixth embodiment of the present invention.

Please replace the heading on page 8, line 12, with the following rewritten heading:
~~Best Mode for Carrying out the Invention~~ Detailed Description of the Preferred Embodiments

Please replace the paragraph beginning on page 8, line 17 through page 9, line 9, which starts with "Fig. 1 is a block" with the following rewritten paragraph:

Fig. 1 is a block diagram showing a configuration of a power assist clutch system which is a first embodiment of the present invention. A power assist clutch system 1 shown in the figure is made up of an input portion 11 as a clutch operation part to which an operation force generated when a driver operates a clutch is input, a detector portion 13 which monitors an operation input condition to the input portion 11 by the driver, and detects a load, torque, displacement or the like, a controller portion 15 as a control ~~means~~ device for generating control signals in accordance with an output signal of the detector portion 13, an assist drive portion (assist force generating portion) 17 as an assist force generating ~~means~~ device for generating an assist force in accordance with a control signal from the controller portion 15, and a joint portion 19 as a drive force generating ~~means~~ device which composes an operation force input from the input portion 11 and an assist force generated by the assist drive portion 17 to generate a drive force of a clutch in a driven part 3.

Please replace the paragraph beginning on page 10, line 14 through line 22, which starts with "The controller portion 15" with the following rewritten paragraph:

The controller portion 15 thus constructed outputs a control signal for generating an appropriate assist force in accordance with an operation input condition of the clutch lever, detected by the detector portion 13, to thereby carry out a smooth control and to quickly optimize the power assist clutch system 1. If necessary, the controller portion may have a fail-safe

function as an auxiliary function provided in preparation for an occurrence of the out-out-step, locking of the engine and other accidental troubles.

Please replace the heading on page 11, line 17, with the following rewritten heading:
<Load detecting device>

Please replace the heading on page 13, line 5, with the following rewritten heading:
<Construction of the sensor portion>

Please replace the paragraphs beginning on page 15, line 5 through line 22, which start with "The load receiving part," with the following rewritten paragraphs:

The load receiving part 231A is magnetized by current flowing through the coil 233A. When pressure load is imparted on the load receiving part 231A, the reverse magnetostrictive effect occurs ~~it~~. Accordingly, its magnetic permeability varies and AC impedance of a circuit including inductance of the coil 233A varies. The load can be electromagnetically detected by measuring at a signal detecting portion a voltage variation between both ends of the coil 233A, which is caused by the impedance variation.

The sensor portion 123 further includes a holder 52 to which the tube end 45 of the outer tube 43 covering the wire 41 passing through the sensor unit cover 51 is fit. An appropriate clearance, not shown, is present around the wire 41 and with the clearance, the wire is smoothly slidable (The same shall apply hereunder). ~~On~~ One end of an elastic member 53, such as a spring, is in abutment with the holder 52, while the other end of it is fixed at a fixing part 54. Accordingly, a predetermined load is applied to the holder 52 in advance.
Please replace the heading on page 18, line 15, with the following rewritten heading:
<Clutch lever load characteristic>

Please replace the paragraphs beginning on page 19, line 23 through page 21, line 1, which start with "As seen also from Fig. 7" with the following rewritten paragraphs:

As seen also from Fig. 7, in the operation of the clutch lever 31 for clutching and de-clutching, the load values when the lever angle increases are larger than those when the lever angle decreases. If an assist force adjusting ~~means~~ device for appropriately adjusting a ratio of

an assist force when the lever-angle increases and the lever-angle decreases to a load (assist ratio) is incorporated into the power assist clutch system 1, the assist force can be generated according to an operation condition of the clutch lever 31. In this case, the assist ratio may be adjusted such that the assist ratio is set to be large in the section O → A where the driver has a sense of the heaviest load, and the assist ratio is set to be small in the section B → C → O. Such an assist force adjusting ~~means~~ device may be provided in the controller portion 15, as a matter of course.

An absolute value of the load applied to the clutch lever 31 is different by the types of vehicles, displacement volume and the like. Further, a load value of the load sensed by the driver is different by the drivers. The best assist ratio is different not only by the types of vehicles but also by the drivers which operate the clutch lever 31. For this reason, it is more preferable that the assist force adjusting ~~means~~ device further includes a setting mechanism capable of changing the assist ratio. In this case, some assist ratios are stored in the memory of the controller portion 15 in the manufacturing stage. The driver selects a desired one from those stored assist ratios, and inputs the selected assist ratio through the input part of the controller portion 15. Further, the driver may set and input a desired assist ratio.

Please replace the heading on page 25, line 19, with the following rewritten heading:
<Control method of the power assist clutch system>

Please replace the paragraph beginning on page 30, line 7 through line 34, which starts with "While the magnetostrictive" with the following rewritten paragraph:

While the magnetostrictive load sensor is used for the load sensor in the instant embodiment, the load sensor may be of the strain gauge type, the capacity type, the potentiometer type, or the pressure-sensitive rubber type~~.~~ as a matter of course.

Please replace the paragraph beginning on page 30, line 22 through page 31, line 2, which starts with "Fig. 14 is a partial" with the following rewritten paragraph:

Fig. 14 is a partial cross sectional view showing a detailed construction of a sensor portion incorporated into a power assist clutch system which is a second embodiment of the present invention. In the figure, a sensor portion 223 is assembled into the clutch lever 31 of the

handle 35 of a motorcycle, like the sensor portion 123 (see Fig. 3) described in the first embodiment.

Please replace the paragraph beginning on page 31, line 7 through line 12, which starts with "Also in the instant embodiment" with the following rewritten paragraph:

Also in the instant embodiment, a load applied to the driver when the clutch lever 31 of a motorcycle is operated is detected for the control. Any of the other physical quantities (rotational angle, linear displacement, rotational torque, and the like) other than the load may be detected for the same purpose, as in the first embodiment.

Please replace the paragraph beginning on page 31, line 23 through page 32, line 7, which starts with "An upper end of a load receiving" with the following rewritten paragraph:

An upper end of a load receiving part 631A of the magnetostrictive load sensor 63A is in contact with the end 411 of the wire 41, and is capable of directly detecting a load applied to the wire 41. Accordingly, the end 411 shown in Fig. 14 contains a contact part 411a having a planar surface, which may contact with the upper end of the magnetostrictive load sensor 63A. A shape of the contact part is presented by way of example, and the contact part may take any other shape other than the illustrated one if the contact part so shaped can contact with the upper end of the load receiving part 631A.

Please replace the paragraph beginning on page 35, line 13 through line 16, which starts with "With this feature" with the following rewritten paragraph:

With this feature, the sensor portion 223 per se is made compact in layout. The sensor portion has good design. The sensor portion, after post-attached, has an external appearance presenting a less unnatural feeling.

Please replace the paragraph beginning on page 36, line 4 through line 9, which starts with "The load receiving part 631" with the following rewritten paragraph:

The load receiving part 631 may be fit to the case 635 till it reaches the bottom surface part of the sensor. By so doing, the load can be received by the ~~whole~~ entire load receiving part,

not through the case. Accordingly, it is superior to the magnetostrictive load sensor 63 in the sensitivity and the response.

Please replace the paragraph beginning on page 36, line 21 through page 37, line 7, which starts with "Further, a flange-shaped reinforcing" with the following rewritten paragraph:

Further, a flange-shaped reinforcing part may be provided at a location near a boundary between the case 635 of the load receiving part 631 of the magnetostrictive load sensor 63 and the bottom surface part of the case 635 (not shown). In this case, a ratio of a thickness of the bottom surface part to the outside diameter of the load receiving part 631 is appropriately adjusted in order to prevent that the bottom surface part of the case 635 is shear broken by a load applied to the load receiving part 631, whereby a further size reduction is secured. The reinforcing part may take many shapes, such as a stepped shape having one or plural steps, a tapered shape, a rounded shape and the like.

Please replace the paragraph beginning on page 38, line 20 through line 23, which starts with "The magnetostrictive load sensor" with the following rewritten paragraph:

The magnetostrictive load sensor used in the embodiment may be variously ~~be~~ changed in design so long as it has a hollowed part into which the wire 41 is inserted. Those load sensors, which have been changed in design, have similar advantages.

Please replace the heading on page 39, line 8, with the following rewritten heading:
<System configuration>

Please replace the paragraph beginning on page 40, line 8 through line 10, which starts with "The remaining system configuration" with the following rewritten paragraph:

The remaining system configuration of the instant embodiment is the same as that of the first embodiment (see Fig. 8), and hence, no further description ~~of it will be omitted~~ will be given.

Please replace the heading on page 40, line 11, with the following rewritten heading:

<Construction of the sensor portion>

Please replace the paragraph beginning on page 41, line 13 through line 24, which starts with "A case 235A of a magnetostrictive" with the following rewritten paragraph:

A case 235A of a magnetostrictive load sensor 23A is in contact with a planar surface of the holder 52 which is opposite to its planar surface into which the tube end 45 is fit. When the holder 52 is turned about a rotational center Q by pressing of the outer tube 43, a load receiving part 231A of the magnetostrictive load sensor 23A is pressed by a pressing member 55. As a result, a load applied to the magnetostrictive load sensor 23A varies in value. A change of impedance caused by the load value variation is detected by the signal detecting portion 125. Incidentally, a distance the magnetostrictive load sensor 23A moves when it receives a load as the result of the operation of the clutch lever 31 is about 1mm at most.

Please replace the paragraph beginning on page 47, line 7 through line 12, which starts with "The construction of the magnetostrictive" with the following rewritten paragraph:

The construction of the magnetostrictive load sensor used in the instant embodiment is not limited to that described above, but it may ~~be~~ variously be changed in design so long as it has a hollowed part into which the wire 41 is inserted, and those load sensors, which have been changed in design, have similar advantages, as in the second embodiment.

Please replace the paragraph beginning on page 49, line 4 through line 17, which starts with "After the load value" with the following rewritten paragraph:

After the load value detected by the sensor portion 523 is differentially amplified by the signal detecting portion 125, the amplified one is output as a sensor output signal to the controller portion 15. And a control signal based on the sensor output signal is transmitted to a motor unit 173 . The motor unit 173 is coupled with the push rod 71 in the driven portion 3, and generates an assist force based on the control signal. The assist force generated assists the push rod 71 in its movement. Specifically, an assist force for the clutch releasing is applied to the push rod 71 which operates for clutch releasing according to the operation of the clutch lever 31.

In this sense, in the case shown in Fig. 23, the release cylinder 91 and the motor unit 173 cooperate to form a drive force generating ~~means~~ device (drive force generating portion).

Please replace the paragraph beginning on page 50, line 2 through line 8, which starts with "In Fig. 24" with the following rewritten paragraph:

In Fig. 24, a mechanism for transmitting the assist force to the push rod 71 is made up of a motor unit 173, a coil spring 93, provided in the motor unit, as a twist spring having a low elastic constant, and a folk member 94, shaped like the letter Y. In this case, a flange part 95 for receiving an assist force generated in the motor unit 173 through the folk member 94 is formed on the push rod 71.

Please replace the paragraph beginning on page 50, line 14 through line 22, which starts with "The folk member 94" with the following rewritten paragraph:

The folk member 94 is supported at first ends (the top ends of ~~a~~ the letter Y) by a shaft 96 fixed to a predetermined position, in a swing fashion. The coil spring 93 is fixed at one end to an output shaft 97 of the motor unit 173 at a position near the base of the tilt guide. The other end of the coil spring 93 is coupled to the other end or movable end (the lower end of the letter Y) of the folk member 94. A mid point of the folk member 94 is brought into contact with the flange part 95 of the push rod 71, while holding the push rod 71.

Please replace the paragraphs beginning on page 51, line 8 through line 22, which start with "The fifth embodiment" with the following rewritten paragraphs:

The fifth embodiment of the present invention has advantages as obtained by other embodiments in which a drive force is transmitted by use of the wire.

(Sixth Embodiment)

Fig. 25 is a partial cross sectional view showing a construction of a sensor portion in a power assist clutch system which is a sixth embodiment of the present invention. In a sensor portion 623 shown, two magnetostrictive load sensors 23A and 23B (having substantially the same constructions as in the first embodiment), which have the same configurations, are

arranged symmetrically with respect to the surfaces of the sensors which are put in contact with each other. Those sensors are located at a mid point of the wire 41. In Fig. 25, an end 411 of the wire is engaged with the clutch lever 31, and another end 413 thereof is engaged with the driven portion 3.

Please replace the paragraphs beginning on page 52, line 3 through line 21, which start with "A pressing member 145" with the following rewritten paragraphs:

A pressing member 145, shaped like a flange, is placed in the sensor container 141. A preset load of the elastic member 143A is selected to be larger than that of the elastic member 143B (about 10kg in weight). An end of a protruded part of the load receiving part 231A of the magnetostrictive load sensor 23A is standstill while being in contact with the flange-shaped part of the pressing member 145. An end of a protruded part of the load receiving part 231B of the magnetostrictive load sensor 23B is supported by the elastic member 143B so as not to receive a load from outside.

A flange-shaped stopper 149 integral with the sensor container 141 is fit to and held on the upper surface of the case 235A corresponding to the protruded part of the load receiving part 231A, thereby preventing an overload from being applied to the magnetostrictive load sensor 23A. Accordingly, even if a large external load acts on the sensor portion, a load of a predetermined value or lower acts on the magnetostrictive load sensor 23A. Accordingly, the magnetostrictive load sensor 23A is effectively protected, and its durability is enhanced.

Please delete the heading "Industrial Applicability" on page 55, line 3.

~~Industrial Applicability~~